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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,628	03/29/2004	Tapesh Yadav	037768-0234	2732
24959 7590 12/16/2009 PPG INDUSTRIES INC INTELLECTUAL PROPERTY DEPT ONE PPG PLACE PITTSBURGH, PA 15272				
EXAMINER LE, HOA T				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/16/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/811,628

Applicant(s)

YADAV ET AL.

Examiner

H. (Holly) T. Le

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 50-78 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 63 and 78 is/are allowed.
- 6) ☒ Claim(s) 50-62 and 64-77 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/226)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date 04/2004

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 8, 2009 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The amended claims include additional limitations that render the restriction between a nanomaterial comprising a chalcogen and a nanomaterial comprising a non-chalcogen no longer necessary. Accordingly, claims 77 and 78 are rejoined with claims 50-76 for examination.

Claim Rejections - 35 USC § 112

4. Claims 64-76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 64 is indefinite because it depends on itself.

Claims 65-76 are deemed indefinite in view of their dependency upon claim 64.

Were they intended to be dependent on claim 63 instead?

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 50-59, 61, 62, and 77 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-45 of U.S. Patent No. 6,344,271. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent as follows. Claims 50-53: The reference claims describe a submicron non-stoichiometric material (reference claim 1) including nanomaterial (reference claim 9) and containing a chalcogen (reference claim 20). The submicron non-stoichiometric material is described as non-stoichiometric material comprising two or more elements of the

formula as presently claims, i.e. $M_{np}Z_{1-x}$, (col. 9, lines 20-46); a value for a selected material property of the non-stoichiometric nanomaterial is greater than 10% different from a value for the same property for a stoichiometric form of the nanomaterial (paragraph bridging columns 10 and 11); wherein M comprises an element that can lower its free energy by chemically bonding with Z (col. 17, lines 49-60). It is noted that Applicant cited paragraph [0187] as support for the lower energy of M when bonding with Z, which description is identical to the description in the patent at col. 17, lines 49-60. Therefore, the reference claims 1, 9, and 20 cover the nanomaterial with specific formula and properties as claimed.

Claim 54: The property as claimed is an inherent property of the non-stoichiometric nanomaterial described above. See col. 10, lines 57-64.

Claim 55: Domain size is the inherent property of the non-stoichiometric nanomaterial described above. See col. 7, lines 29-34 and col. 10, lines 61-65.

Claim 56: More than two metals is claimed in the patent (reference claim 21) and also exemplified at col. 10, lines 20-21 and 25-29.

Claims 57-58: More than one element M and more than one element Z is described at col. 10, lines 10-29.

Claim 59: The aspect ratio of the non-stoichiometric nanomaterial as claimed is described at col. 9, lines 5-9.

Claims 61-62: Dispersion of the nanomaterial in a polymer matrix to form a composite material or a coating composition is disclosed at col. 12, lines 15-32.

Claim 77: Claim 77 is similar to claim 50, except that the Z is B, C, Si, N, P, O, S, Se, Te, and H instead of a chalcogen. Disclosure of claim 50 is discussed above. Element Z being O, N, B, C, H is claimed in the reference claims 14-18.

Allowable Subject Matter

7. Claims 63 and 78 are allowed.
8. Claim 60 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. Claims 64-76 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art references of record, singly or combined teaches a nanostructured composite material comprising a nanofiller comprising the specific non-stoichiometric nanomaterial as claimed wherein the composite exhibits a property value that is at least 20% different from the same property of a composite comprising a microfiller.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. (Holly) T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 12:30 p.m. to 9:00 p.m. (EST), Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. (Holly) T. Le/
Primary Examiner, Art Unit 1794

December 10, 2009